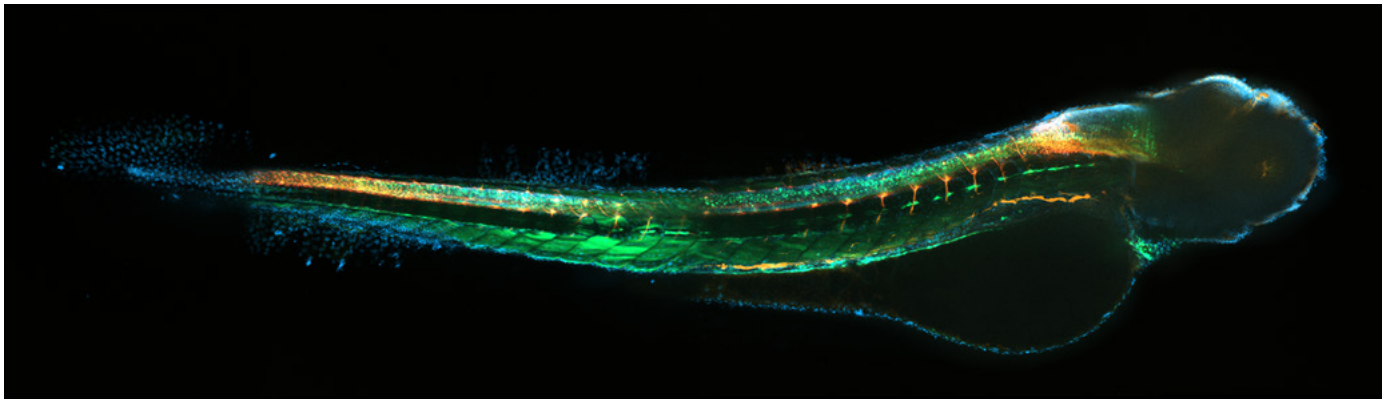
High-Resolution 3D Visualization & Evaluation

Easy and Cost-Effective 3D Imaging with ZEISS Axio Observer *section* and ZEISS Axio Imager *section*



Transgenic zebrafish larvae at 4 days post fertilization staining for: Glial fibrillary acidic protein, acetylated Tubulin, GFP and DNA. Embedded in 1.2 % low melt agarose. ZEISS Apotome 3 optical sectioning. Image courtesy of Hanna Reuter, Leibniz Institute on Aging – Fritz Lipmann Institute, Jena Germany

High-resolution 3D imaging is important to understand the spatial context of your biological structures of interest. For efficiently deriving results from your 3D data, you want to visualize, analyze, and present complex 3D datasets in a clear and concise manner.

Axio Observer section and Axio Imager section are designed to provide streamlined workflows for cost-effective 3D imaging from data collection to evaluation. Image thick tissues without out-of-focus light blur and improve your segmentation results. Create stunning 3D renderings for visualizing details you haven't seen before with your widefield microscope.

Scope of Application:

- 3D cell culture models (organoids, spheroids)
- Small model organisms (yeast, *C. elegans*, zebrafish)
- Cell monolayers
- Tissue sections

System Highlights:

AI Sample Finder
With the click of a button, let the microscope automatically find and focus your sample and generate an overview image at 5 – 10× faster speeds compared to a manual system start.

Viluma 7 LED light source
Get the highest spectral flexibility combined with low phototoxicity.

Axiocam 8 camera
Collect high-resolution images from large fields of view, combining high frame rates with speed and sensitivity.

Software-based optical sectioning
Utilize this most light-efficient and affordable data acquisition method for acquiring high-resolution 3D images.

Apotome 3 and Apotome Plus
Include hardware-based structured illumination for increased optical sectioning power to gain sharp images of thicker samples. Achieve up to 180 nm resolution in real samples with Apotome Plus.

Advanced processing
Process your images during acquisition, using one of several functions like deconvolution, deblurring or denoising.

Axio Observer *section* and **Axio Imager *section***

The Bundle Components

Microscope

- Axio Observer 7 (inverted)
- Axio Imager 2 (upright)
- Scanning stage 130 × 100
- Mot. Condenser NA 0.55[1] / NA 0.9[2]
- AI Sample Finder[1]
- Apotome 3

Light source / camera

- Viluma 7
- Filter sets 38, 43, 50, 64, 70[2], 96, 115
- Axiocam 820 mono

Objectives

- EC Plan-Neofluar 5×/0.16
- Plan-Apochromat 10×/0.45
- Plan-Apochromat 20×/0.8
- Plan-Apochromat 63×/1.4 Oil

Workstation

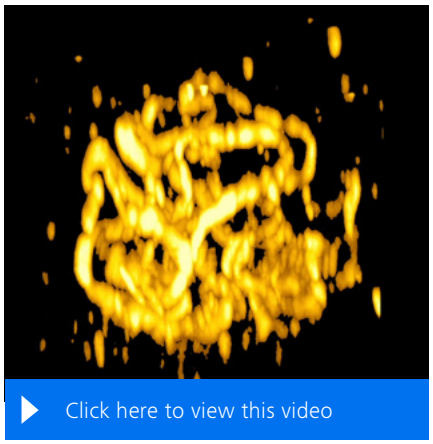
- Z8 Workstation with 128 GB RAM and nVidia Quadro RTX A4000 16 GB DP

Depending on your application needs, you can either choose an inverted configuration based on ZEISS Axio Observer 7 (left) or an upright configuration based on ZEISS Axio Imager 2.

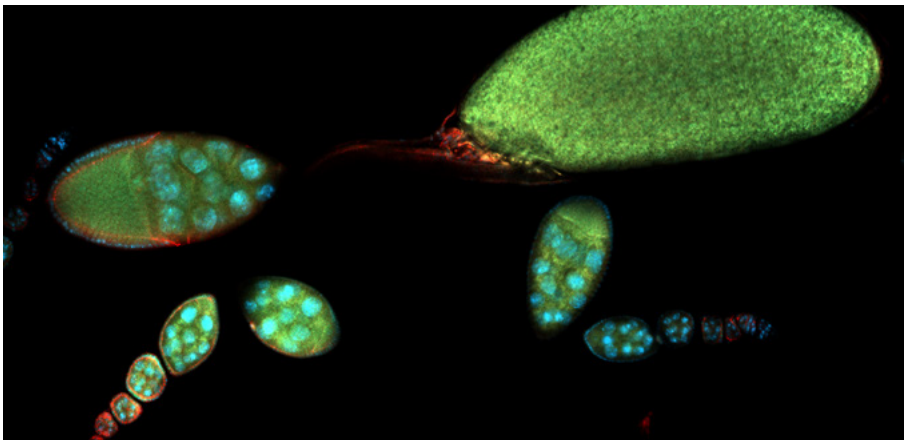
ZEN software packages

- ZEN Toolkit Motorized Acquisition: Acquire images and control motorized components in multi-dimensional experiments.
- ZEN Toolkit 2D: Create flexible automatic measurement programs for the analysis of your optical sections.

[1]Axio Observer 7, [2]Axio Imager 2



Chromosomes of A. Thalina *stained with REC8 Sample Courtesy of S. Durand, MPI for Plant Breeding, Germany.*



Drosophila *egg chambers of different stages stained with DAPI (blue), Alexa488 (green) and Alexa555 (red). Sample courtesy of Vanessa Weichselberger, University Freiburg, Germany.*

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